

licenses. The time it will take for digital consumer devices to reach significant penetration, however, is a major unknown.

Is Mr. Safire's estimate of a potential value of \$500 billion a plausible one, given the auction process that would be phased in over a number of years?

In his March 16, 1995 New York Times essay, William Safire said, "Based only on current uses, which are primitive, the market value of the VHF, UHF, cellular, broadband and narrowband spectrum ranges around \$120 billion." Safire also noted that in the future, the uses of the broadcast spectrum will expand, as will its value, "I've seen not-for-attribution estimates that the market value of the digitized spectrum in that onrushing era will be -- hold your breath -- a half-trillion dollars, give or take a hundred billion."

The estimates the FCC has presented are conservative, and based on what is true in the broadcast market today, both in terms of services and market forces. It is highly unlikely that the capital markets can or will put forth a half-trillion dollars on what are now speculative services with equally speculative demand. It is worth noting, however, that early estimates of demand in the cellular market were very conservative, with projections of under 1 million subscribers by the year 2000. The current subscribership level has grown to over 25 million. The value per pop has also risen dramatically, from \$10 in April, 1984 to \$242 in January, 1995. There is no reason to believe that the new services offered using digital broadcast technology will not do as well as or better than this.

Therefore, while we believe a public auction held today would not reach the \$500 billion estimate, it is possible that private market valuations in the future might lead to figures closer to Mr. Safire's estimate.

What potential does utilization of the spectrum this additional way have for development of new technologies and industries and new employment compared to utilization of the spectrum for television services?

Estimating job creation from heretofore undeveloped services and technologies is a task that is more difficult than predicting the value of spectrum. Although we cannot make estimates of job or industrial growth with any degree of certainty, the Commission does fully support the adoption of policies that encourage the creation of new services and jobs through entrepreneurship, expansion of services and competition.

Question Three

The pending legislation would permit the additional television use of the spectrum with no recovery to the government, but does appear to allow the taxpayers to recover some type of annual fee or rent based on what the FCC estimates might be its estimated market value to the extent the spectrum is allocated by broadcasters for supplemental non-television services. Aren't there serious problems in the ability of the government to recover such a fee if only estimates of value can be made and no actual market auction or other actual market distribution system is created? What is the best way to ensure that the taxpayers receive the full value of the spectrum?

The best thing for the economy, and therefore for taxpayers, is to recapture the NTSC spectrum by a rapid and sure transition and permit broadcasting to move to a digital broadcast standard.

Spectrum is a critical and valuable natural resource owned by the public. While the revenue that was collected from the PCS auctions was an important benefit for taxpayers, the most important benefit was that the spectrum was assigned to those who demonstrated their willingness to invest in utilizing this scarce resource. The result of this efficient market-based spectrum assignment approach is that tens of billions of dollars of additional investment will be made and close to a million jobs will be created as the PCS operators provide competition in land-line and cellular telephony, lowering prices and increasing quality of service.

Moving the broadcast industry to digital transmission as quickly as possible is critical to our economy because it not only will allow the broadcast industry to offer improved services to consumers, but because it will allow us to free up large amounts of contiguous nationwide spectrum that can spur additional jobs, investment, competition and auction revenue. Because the NTSC analog broadcast standard and the television receivers that receive this analog signal were designed over 50 years ago, a significant amount of spectrum is wasted. Broadcasters today have over 400 MHz assigned to them, but because of interference and market forces, on average only 80 MHz is used per market. In the top markets, around 120 MHz is used. Digital broadcasting will allow much more efficient and intensive use of this spectrum. Digital stations can be slotted in between the existing NTSC stations with minimal interference during a transition period that would allow for the development of the services described above. These digital broadcast slots would be of limited value for other users because they are not contiguous, there would be no common nationwide channels, and their use would be restricted by the need to avoid interference with NTSC analog television sets. When the transition to digital is

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completed, however, and the analog NTSC stations are turned off, we will be able to recover significant amounts of contiguous, common channel spectrum nationwide. If repacking is required (something many broadcasters object to, but which is necessary to create the maximum amount of contiguous spectrum) around 150 MHz of prime spectrum may be recaptured. The exact amount will be determined by power, interference, and transmitter location rules. This spectrum can be auctioned off to create a new generation of wireless services with all the attendant investment, job creation and competition that results from efficient spectrum use.

Therefore, speeding the transition to digital television broadcasting is in the public interest because it will free up a significant amount of spectrum and create a whole new generation of broadcast and other services.

In speeding this transition to the digital age a major policy goal must be to ensure that consumer expense and dislocation is minimized. There are over 34 million television households that rely on over-the-air signals for their television service. These households must either buy a digital television or a converter box or transition to one of the other video-to-the-home providers such as cable, DBS, video dial tone, MMDS, or LMDS. The Commission's current plan is to allow for a 15 year transition before analog stations would be required to cease transmission. It would be in everyone's best interest to identify ways to speed this transition and the Commission currently is evaluating options to achieve this goal.

The second issue that must be addressed as part of the transition to digital broadcasting is what constitutes fair treatment for broadcasters who are operating today's analog stations. The vast majority of these broadcasters bought their stations and the right to use the spectrum in private transactions where they paid fair market value. They bought these stations with an expectancy of renewal and thus it would seem unfair to ask them to shut down their analog stations at some future date without providing them some form of "compensation." The Commission's current plan is to "compensate" them with the spectrum for the digital license. Some have asked, however, if this compensation should be monetary or in-kind with some other spectrum grant.

Pending Senate legislation addresses these questions by providing each broadcaster a digital broadcast license and asking them to pay a fee based on the percent of time they offer subscription services. You are correct that there are serious problems with this proposal. Any proposal that relies on a fee tied to use has all the theoretical and administrative drawbacks of a consumption tax. It distorts use and stifles consumption and it requires the FCC to be

highly active in constantly monitoring, allocating and auditing the relative uses of spectrum. This additional oversight would require increased resources at the FCC and run the risk of micromanaging a new industry. These problems are significantly reduced by using a flat spectrum fee but even this proposal, as you point out, forces the FCC to determine the appropriate fees for spectrum without having an appropriate market valuation.

There are many options for addressing these issues and the way in which the transition from NTSC to ATV is accomplished, each of which seeks to meet different policy objectives. Some of these options are within the Commission's statutory authority, but others are not. The Commission welcomes the opportunity and flexibility to explore these options fully and to find a solution that maximizes public and private benefit.

Question Four

As we understand it, broadcasters' legal rights to the spectrum are limited to licenses for analog broadcast of over-the-air free television services on the portion of the spectrum they are allocated in the license and actually utilize. Do broadcasters have any legal rights to use of the spectrum beyond the limits in their current licenses? Do they have rights to offer services other than the over-the-air free television services allowed in their licenses, such as the supplemental services discussed in question 2?

Television broadcasters are licensed to provide analog over-the-air television service on their licensed spectrum, but this service need not be "free." Licensees may provide analog television service on a subscription basis, provided that they utilize FCC-approved encoding equipment and notify the FCC at least 30 days in advance of the commencement of subscription service. Television broadcasters may offer additional services on the vertical blanking interval (VBI) in the video portion of their NTSC signal and on aural subcarriers in the audio portion of their NTSC signal. Examples of such services in the VBI include teletext, paging, aural messages, closed captioning, ghost cancelling, and bulk data distribution.

Television broadcast licensees may also make use of subcarriers in the aural portion of the signal. See 47 USC Secs. 73.665, 73.667, and 73.669. Licensees may use subcarriers for stereo sound, transmission of signals relating to the operation of TV stations (e.g., relaying broadcast materials to other stations), transmission of pilot or control signals to enhance the station's program service (e.g., receiver control, program alerting or identification), or subsidiary communications services such as functional music (e.g., background music in elevators), foreign language programs, radio reading services, utility

load management, financial data, paging, and point-to-point or point-to-multipoint messages.

With the NTSC standard, there is not much capacity left for ancillary services to be provided. With the advent of a digital standard, broadcasters will be much better able to use the spectrum in an efficient manner and develop ancillary services to a greater degree.

Question Five

Are broadcasters able to provide both an analog and digital signal on their current spectrum?

Television broadcasters are currently not permitted to provide a digital video signal. They provide an analog video signal, but may provide certain digital services on the VBI or aural subcarriers. Even if they were permitted to broadcast digital "in band" with analog, the current technology only supports less than 1 Mbps, with 1-2 Mbps perhaps possible. As a point of reference, this capacity is sufficient for only one poor resolution video program.

To what extent have the broadcasters made, or will they make, investments to develop digital television?

The broadcast networks are currently funding the Advanced Television Test Center where work on a Digital High Definition Television standard is underway. They have contributed about \$14 million in addition to equipment and personnel to this effort. As contributors to the Advisory Committee on Advanced Television Service, broadcasters have been part of a major effort involving over one thousand people conducting research and advising the Commission on the technical and public policy issues concerning advanced television.

Broadcast stations have been using uncompressed digital recording for years and are spending millions on compressed digital editing equipment as they increasingly upgrade existing equipment from analog to digital both to take advantage of the higher quality of digital equipment and to prepare for a new advanced television standard.

What additional costs could the broadcasters expect to make to undertake digital broadcasting?

The 1992 Advisory Committee on Advanced Television Service (ACATS)

estimates of the costs of conversion from analog to a HDTV digital signal are between \$1.3 to \$1.6 million per station for a "start-up" station (no HDTV or digital local origination capabilities - just pass through of HDTV or digital signals and conversion of analog to digital). The Advisory Committee has estimated the cost of a transitional studio (allowing some origination of digital HDTV) at approximately \$2.2 million per station. It is relevant to note that the cost of simply upgrading from analog to digital, forgoing the High Definition capabilities, is estimated at only \$260,000 less than the full HDTV conversion, due to the fact that much of the equipment, including transmitters, transmission line and antennae, are the same for both standard definition digital and high definition television. There are currently 1,527 commercial and non-commercial television stations for an estimated industry total of \$1.99 to \$2.44 billion for pass-through facilities or \$3.36 billion for transitional studios. This number would be higher for a complete conversion of all studio cameras and equipment, although we do not have estimates of those costs at this time. Since these expenses would be incurred over time across the transition, much of these expenditures would be incurred through normal studio and equipment upgrades. As mentioned earlier, many stations, especially those owned by networks and large group owners, have already begun to incur these costs as part of their routine upgrade and replacement schedules. Further, if stations are subject to simulcasting requirements, they will also incur the costs of powering and maintaining two sets of equipment for some period of time.

Question Six

Will the current and additional 6 MHz expected to be allocated to the broadcasters be permanent or for a limited time period to allow for the transition to advanced digital television? If the allocation is for a limited time period, what time period is being considered and why?

The key component of providing an efficient and effective conversion to Advanced Television is the recapturing of the current NTSC spectrum, particularly by planning for recovery of contiguous coast-to-coast blocks. As previously stated, this must be done in a way that protects both consumer and broadcaster investment in analog TV to the fullest extent possible. The current proposal requires broadcasters to surrender the 6 MHz of NTSC spectrum they currently occupy at the end of a 15 year transition period, leaving them with a 6 MHz ATV channel. The transition period will begin on the later of the date an HDTV standard is set or the date an allotment of spectrum for licenses is adopted. The 15 year time frame was chosen in order to preserve consumer investment in current analog equipment (the average life of a television today is approximately 10 years), to give consumers a reasonable amount of time to

upgrade, and to allow broadcasters sufficient time to raise the capital necessary for a full conversion to digital HDTV. The Commission plans to seek comment on whether, given rapid advancement in technologies, the transition period should be shortened.

Some interested parties in the Commission's ATV proceeding have questioned whether the U.S. Supreme Court's decision in Ashbacker Radio Corp. v. FCC, 326 U.S. 327 (1945), would permit the Commission to assign an additional 6 MHz channel (to be used for advanced television) to each existing television broadcaster.⁵ In their view, additional broadcast spectrum should be made available for application by any interested party.

After the transition time period elapses, will the spectrum be subject to auction?

The recovered spectrum should be auctioned.

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⁵In Ashbacker, the Court held that the Commission may not grant one of two *bona fide* mutually exclusive applications without a hearing on the merits of both applications. The courts have not squarely addressed whether this holding limits the Commission, in determining eligibility requirements in the context of a spectrum allocation proceeding, from restricting eligibility to a defined class. The Commission is currently studying this issue.

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